

Scientists Make An Amazing Discovery

Stumble On A Power "Too Great To Trust Humanity With"



This is the two-headed mosaic portrait of Mr. Norman in the Bank.

YOU CAN TREAD ON THE FACE OF MONTAGU NORMAN

Sunday Express Special Representative

IF you visit the Bank of England, using the new entrance in Princes-street, E.C., you will be in danger of treading on the features in mosaic of the governor, Mr. Montagu Norman.

His face has been put on the two heads of the gods Janus and Jupiter by the Russian artist Mr. Boris Anrep.

No one looking at the mosaic work could fail to recognise Mr. Norman's features.

"What a remarkable likeness to the governor," I said to the beadle who showed me the rebuilt offices of the Bank.

"I suppose it is because Janus and Jupiter are given brown beards that every one thinks the heads are intended to represent Mr. Norman," he replied.

But Mr. Boris Anrep, who designed the floors, frankly admitted to me that the two heads were portraits of Mr. Montagu Norman.

"I deliberately fashioned the likenesses of Mr. Norman as a compliment to him," he said. "They are rather good, don't you think?"

"Did Mr. Norman raise any objection?" I asked.

"Well," laughed the artist, "I'm afraid he did not have much opportunity. He did not know of my intention until the work was completed. He was certainly surprised when he saw the finished job."

"I explained to him that I had used his features as a compliment to him, and I think he accepted the compliment which I intended, for he declared that it was a very good picture and well done."

Janus, most ancient King of Italy, said to have been the son of Apollo, according to the ancients, presided over all gates and avenues, and through him prayers reached the gods.

A Whole Country Might Be Wiped Out In One Second

By C. A. Lyon

Somewhere In England—Saturday.

A DISCOVERY OF SUCH TERRIFIC POTENTIALITIES THAT IT MAY TRANSFORM THE WORLD BEYOND MAN'S WILDEST DREAMS IS BEING INVESTIGATED IN THE LABORATORIES OF BRITAIN AND CERTAIN OTHER COUNTRIES.

This is the first news of it that has been published. The experiments concern a new way of producing energy in inconceivable quantities by splitting the atom of a rare metal, called uranium.

If the experiments succeed 1lb. of the metal will produce as much power as twenty million tons of coal do now. The new potential power was described to me by one of the scientists who are investigating it as "too great to trust humanity with."

All the other scientific discoveries ever made would be dwarfed by this discovery. In Britain it is being studied at Liverpool, Birmingham and Cambridge.

In America the implications are considered enormous for humanity but the American scientists who are engaged in the work have asked the others not to disclose the details of the work lest the new power should be misused for making war.

One of the English scientists engaged in the work gave me the following outline of what is happening. It reads like H. G. Wells, but it is strictly authentic.

The new power is derived from the release of the energy in the atom. This energy has long been known to exist in enormous quantities, but it has never been possible until this year to release it except to a very small extent at prohibitive expenditure.

Then a new way of doing it was discovered.

The older method, it is necessary to explain, was that devised by the celebrated scientist Lord Rutherford in 1919. His method depended partly on the fact that the nucleus of every atom of any substance in the world consisted of two kinds of particles, first, protons, which are electrically charged particles; second, the neutrons or neutral particles which have no electric charge.

Lord Rutherford released the energy of the atom by splitting it with a bombardment of what are called Alpha particles. These particles are composed of two neutrons and two protons.

When the atom of the bombarded substance broke up it would form two new substances. But in addition it would set free a fabulous amount of energy.

The average for a single atom, an object only one two-hundred millionth of an inch in diameter, was to release four to five million electron volts of energy.

The only thing was that in order to produce this amount of energy other energy thousands of times greater still was necessary.

Released Energy

The reason was that only one atom in a great many would be hit during a bombardment, so as a motive power atom-splitting was impracticable, though it was of great scientific importance.

In all the years since the war interesting experiments in atom-splitting have been going on in laboratories.

The alchemist's dream has come true. Gold has been produced from base metal, though it costs more than gold from the earth. It is possible to make artificial radium that is better than "real" radium. But all alone it seemed an impossibility to use atomic energy in a practical way.

Last Christmas time a revolutionary discovery was made by a German worker called Hahn.

It has been discovered since Lord Rutherford's time that it was possible to split the atom by either the proton or the neutron alone.

But Hahn noticed that there was one substance which, when bombarded with neutrons, did not behave like the others.

This substance was uranium, a rare metal, and the heaviest of all substances. It looks like iron, and it is considerably heavier than lead.

When Bombarded

All other substances except uranium divide up into a heavy substance and light-weight particles when bombarded with neutrons. But Hahn found that uranium divided up into two heavy substances.

Workers in all countries seized on his discovery. It was found simultaneously in Copenhagen, New York and England that the breaking up of uranium produces forty times as much energy as the breaking up of other substances.

But even this was not the most important thing. For although uranium produces forty times more energy in breaking up than other substances, it still takes a force of 10,000,000,000,000 volts to produce only 200,000,000 volts of energy from the atom of uranium.

The discovery beyond all these things was destined to shake the world was the following:—

Both the broken-up halves of the uranium went on firing out neutrons themselves. Each neutron fired out from the "halves" attacked other atoms of uranium. These atoms in turn attacked others.

In other words, the atom, once broken up, goes on breaking up more and more atoms. Each atom releases 200,000,000 volts. The energy is thus released in ever-growing quantities, just as a bit of rock will produce an ever-growing avalanche of snow.

As yet the process has been seen

in only a very small way, because impurities in the uranium have made the "chain reaction" process fizzle out.

But if it could continue—and there does not seem any reason why it should not—the outpouring of energy would exceed anything ever known in the world.

If the splitting up of a single atom of uranium would result in more and more splitting up, and if each gives off 200,000 volts, anything in the world may result.

It Costs 32s.

It is at this stage that things are now. Science stands on the threshold of a release of power so vast that no one knows what will happen.

The laboratory I saw today they are making the plans for the first big experiment. That will consist of the breaking up of one pound of uranium.

The uranium will cost 32s. to buy. Theoretically it will produce the energy of 20,000,000 tons of coal.

The first thing which will be done is to purify it in the laboratory electric furnaces.

After the purification by smelting the uranium will be powdered and mixed with liquid hydrogen at unimaginably low temperatures—minus 253 degrees Centigrade. It will then be bombarded with neutrons from a radio-active substance and then—no one knows what will happen.

The potential energy which might be released in this experiment would be capable of blowing up the whole of England.

But although theoretically there is such great energy available in a pound of uranium, it is certain that the whole of this cannot be released at once.

Experimenting on this scale is therefore perfectly safe.

Driving Engines

But the uses to which it might be put are appalling. Science, with its explosives, its electricity, its wireless, has been growing ever more powerful. This is the climax.

A nation at war might be able to wipe another nation right off the face of the earth in a second.

It might also blow itself off the earth in the attempt.

The experiment with 1lb. of uranium is intended only as a beginning. It is held that it is probably only possible to determine whether the uranium will release its energy in such a way that it could be used to drive engines by experimenting with a ball of uranium about a yard in diameter. Such a ball would weigh a ton.

The possibilities of experimenting with it are being seriously considered. It would cost about £3,500 to buy the uranium ore and perhaps another £1,000 to purify it.

The university in which I write this hopes to raise the money for such an experiment.

A professor at the university whose judgment is as good on the subject as any one's in the world told me in utter seriousness that if the experiment with the one-ton ball went wrong the energy released would not only blow up this country but the whole world.

Their Secret

The professors of Liverpool, Birmingham, Cambridge, America and France have kept their amazing experiments secret.

The first hint of what was going on was in a letter which had just been published in a British scientific paper. It was written by M. Curie-Joliot, son-in-law of the celebrated Mme. Curie. He and Mme. Curie's daughter are among those working on the project.

It is curious to think that these experiments, undertaken by men out of the great world in isolated laboratories, may perhaps change the world more than all the conferences, the kings, and the wars that there have ever been.

Army Council Discuss

Conscription All Day

The Army Council held its longest continuous meeting for many years yesterday, hammering out final details of the conscription scheme. Members sat continuously from 11 a.m. until 6 p.m. with only a brief break for a sandwich luncheon.

The meeting was made necessary because the Cabinet had rushed its decisions only last Tuesday, leaving many details to be settled. The text of the Conscription Bill will be before the Cabinet tomorrow and published tomorrow night.

TEST BY-ELECTION

Conscription will be the main issue in the Hallam (Sheffield) by-election, the candidates for which (nominated yesterday) are Mr. Roland Jennings, chartered accountant (Conservative) and Mr. C. Darvill, school teacher (Socialist). Polling day is May 10.

Cheer, Boys, Cheer!

THE greatest cheer in the Cup Final at Wembley yesterday went up when Portsmouth scored their fourth goal. That was the climax of the match. Wolverhampton Wanderers had no further chance and the crowd shouted its relief.

A Marconi-Ekco sound recording instrument "listened to the whole match" and registered every noise in phons—units of sound.

Portsmouth's fourth goal raised 110 phons. Next came Portsmouth's second and Wolverhampton's only one, with 107 each. The first and third registered 105 phons.

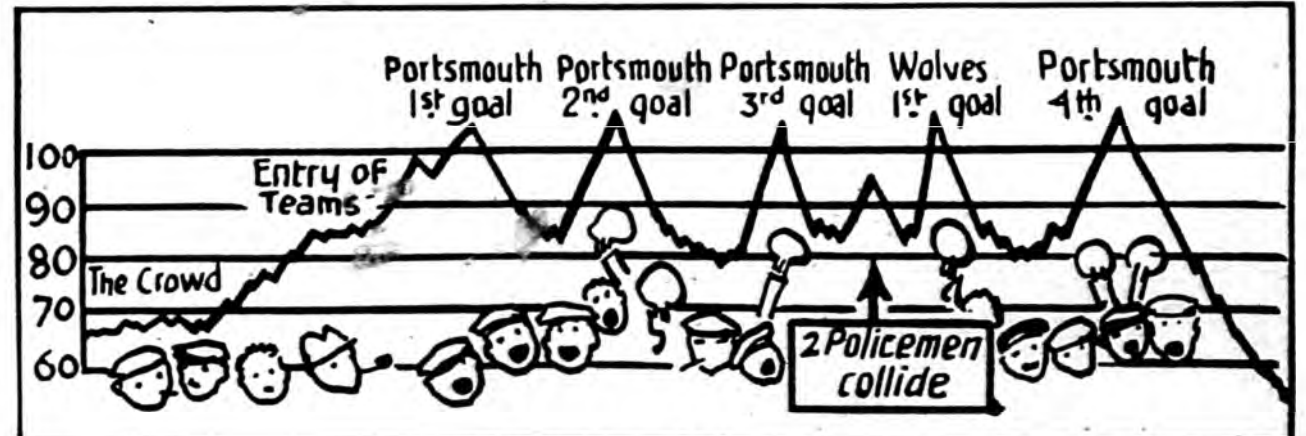
Most of the game was played out between 85 and 95, which shows that there was considerable excitement as the general crowd noise, measured

before the match started, was sixty-five phons.

A policeman who tripped over another policeman in running after the ball raised ninety-six phons of laughter, which was one phon more noise than greeted the King.

All the exciting raids and "near things" were shown in jumps.

The noise was fairly steady around 85. Then there was a raid on goal and a shot. The needle jumped to 95.



Woman Learns To Swim At 72

SEVENTY-SIX-YEAR-OLD Mrs. Wheelwright, of Norton-close, Enfield Highway, Middlesex, was one of the few to brave the chill wind for a swim at the summer opening yesterday of the Enfield open-air swimming pool.

She learned to swim at the age of seventy-two.

NEARLY CRASHED ON CUP FINAL

WHILE 100,000 people watched the Wembley Cup-tie drama yesterday, another drama, featuring a woman pilot, was taking place over their heads.

The engine of her airplane partly failed. The aircraft began to sink down towards the crowd, which was too absorbed in the game to notice.

But by cool flying she was able to prevent a crash and land on Sudbury Golf Course uninjured.

The pilot was Mrs. Winifred Crossley, of Thurlough, Bedfordshire.

My Goodness McGuinness!

NIAL McGuinness is a waiter. But he doesn't like having to wait when he is off duty.

At 5 a.m. yesterday the manager of the Criterion Restaurant, Piccadilly-circus, gave him in charge for smashing a mirror at the restaurant.

At Bow-street Police Court later McGuinness said that he had had to wait half an hour for service and then found there was nothing for him. So he lost his temper.

Now he has to pay 10s. fine, 10s. costs, and £2 10s. for repairing the mirror.

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